

REMARKS

Claims 1, 2, 4, 5, 6 and 7 have been amended. Support for amendments can be found at page 32, lines 1 to 4, page 38, lines 11-13, page 39, lines 1-3 and Figures 4, 6, 11, 13 and 16 of the present specification. Thus, no new matter has been added. Upon entry of this Amendment, which is respectfully requested, Claims 1-12 are pending.

Response to Claim Objections

Claims 4-7 were objected to as being unclear.

Claims 4-7 have been amended to more clearly define the subject matter which Applicants regard as the invention. Particularly, the term “itself” in claims 4, 5, 6 and 7 is amended to properly refer to the ground electrode, the center electrode, the ground electrode and the center electrode, respectively. Further, these claims have been amended to more clearly recite that the seat tip has a thermal expansion coefficient between that of the noble metal tip and that of the ground electrode (claim 4), or that of the center electrode (claim 5), or that of the ground electrode (claim 6), or that of the center electrode (claim 7). There is no change in claim scope, and none was intended.

It is respectfully submitted that the claims as amended fully comply with 35 U.S.C. § 112, and withdrawal of the foregoing objection is respectfully requested.

Response to Rejections Under § 103

Claims 1 and 2 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over JP 07-022155 to Oshima in view of U.S. Patent No. 6,215,235 to Osamura.

Claims 4 and 5 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Oshima in view of Osamura, and further in view of U.S. Patent No. 4,540,910 to Kondo et al.

Claims 6 and 7 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Oshima in view of Osamura, and further in view of U.S. Patent No. 5,465,022 to Katoh et al.

Claims 3 and 9 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Oshima in view of Osamura, and further in view of U.S. Patent No. 4,700,103 to Yamaguchi et al.

Claims 8 and 10 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Oshima in view of Osamura in view of Kondo et al., and further in view of Yamaguchi et al.

Claims 11 and 12 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Oshima in view of Osamura, in view of Katoh et al., and further in view of Yamaguchi et al.

Applicants respectfully traverse.

The present claims recite a method for producing a sparkplug whereby welding of the noble metal tip is performed in such a manner that a laser beam is applied on the whole circumference of the flange portion of the noble metal tip obliquely at an angle to both the side surface of the noble metal tip and the surface of the electrode. In other words, the laser beam is applied obliquely to the electrode through the flanged portion of the noble metal tip thereby forming a weld having a higher noble metal content (e.g., 60% or even higher), such that the noble metal tip and the electrode have a sufficiently high welding strength therebetween.

Oshima fails to disclose or suggest a method whereby the laser is applied obliquely to the noble metal tip and the electrode. Rather, Oshima discloses a method whereby the laser beam is applied to the boundary between the noble metal tip and the electrode in a direction

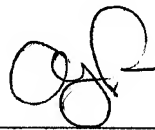
perpendicular to the side surface of the noble metal tip. See, Figures 4 and 5. Thus, the noble metal tip and the electrode are equally exposed to the laser beam. Since the electrode has a lower melting point as compared to the noble metal tip, the electrode is melted to a greater extent as compared to the noble metal tip. Accordingly, the resulting weld has a lower noble metal content and, as such, the weld is not sufficiently strong.

Each of Osamura, Kondo, Katoh and Yamaguchi fails to make up for the deficiency of Oshima. Thus, Oshima, Osamura, Kondo, Katoh and Yamaguchi fail to render obvious the present claims. Accordingly, withdrawal of the rejections is respectfully requested.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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